UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte PETER HOSSEL, THOMAS WUNSCH, and REINHOLD DIEING

Appeal No. 2007-0080
Application No. 09/771,595

ON BRIEF

Before MILLS, GRIMES, and LEBOVITZ, Administrative Patent Judges.

LEBOVITZ, Administrative Patent Judge.

DECISION ON APPEAL

This appeal involves claims to a sunscreen which comprises a copolymer and an inorganic UV filter. The Examiner has rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 134. We reverse the rejection.

Background

Skin and hair are damaged by UV-A and UV-B radiation from the sun. Specification, page 1, lines 10-25. Sunscreens are utilized in cosmetic and dermatological preparations to protect skin and hair from the harmful effects of sun. Id.,

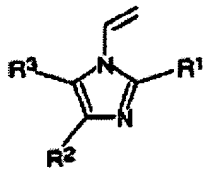
page 1, lines 10-16. UV absorbers are used to absorb both UV-A and UV-B radiation. Id., page 1, lines 22-24. Inorganic sunscreen filters, such as titanium dioxide and zinc oxide, "have also become increasingly important in cosmetics and dermatology." Id., page 1, lines 26-32.

Discussion

Claim status

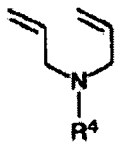
Claims 1-4 and 9-19, which are all the pending claims in the application, are on appeal. We select claim 1 as representative to decide this appeal. This claim contains two components: A) a copolymer; and B) an inorganic UV filter. It reads as follows:

> 1. A mixture comprising
> A) at least one copolymer obtained by
> (i) free-radically initiated solution polymerization of a monomer mixture of
> (a) 0.01 to 99.99% by weight of at least one monomer chosen from the group consisting of N-vinylimidazoles of formula (I)



I

> in which the radicals R^1 to R^3, independently of one another, are hydrogen, C_1-C_4-alkyl or phenyl, and diallyamines of formula (II)



II

> in which the radical R^4 is C_1-C_{24}-alkyl;
> (b) 0.01 to 99.99% by weight of at least one N-vinyllactam;
> (c) 0 to 50% by weight of at least one unsaturated acid or an unsaturated anhydride;
> (d) 0 to 50% by weight of at least one free-radically copolymerizable monomer which is different from (a), (b) and (c); and
> (e) 0 to 10% by weight of at least one monomer having at least two ethylenically unsaturated nonconjugated double bonds which acts as crosslinker, and

(ii) subsequent partial or complete quaternization or protonation of the polymer where the monomer (a) is not quaternized or only partially quaternized, and B) as inorganic UV filter at least one micronized metal oxide chosen from the group consisting of titanium dioxide, zinc oxide, cerium oxide, aluminum oxide, silicon oxide, zirconium oxide, manganese oxide, aluminum oxide [sic] and iron oxide.

Obviousness under 35 U.S.C. § 103

Claims 1-4 and 9-19 stand rejected under 35 U.S.C. § 103(a) as obvious over Dieing[1] in view of Tanner[2] and George.[3]

"Cationic polymers are used as conditioners in cosmetic formulations. They . . . bring about an improvement of the wet combing capability of the hair . . . [and] prevent the electrostatic charging of the hair." Dieing, page 2. Dieing teaches cationic copolymers comprising N-vinylimidazole monomers (id., page 3; page 7, Example 3) which are suitable as conditioners in cosmetic preparations for the hair, including in lotions, conditioners, rinses, and shampoos. Id., pages 5-7.

The Examiner states that Dieing teaches the copolymer recited in claim 1, including in the recited amounts and with the recited crosslinking agent, but does not describe the presence of an inorganic UV filter ("B") as required by the claim. Answer, pages 3-4. For this component, the Examiner asserts that "Tanner et al. teach that it is conventional to employ sunscreens in a variety of personal care products." Id., page 4. Tanner describes a composition suitable for application to the skin which contains dibenzoylmethane (a UV absorber) and surface-treated zinc oxide, the latter which is an

[1] Dieing, EP 0 893 117 A2, Jan. 27, 1999. All references to Dieing are with respect to the English translation (November 2002) of the German text. The pages numbers correspond to the pagination in the German text. The translation incorrectly listed Hossël as the first inventor. However, page 1, column 1, of the original publication shows "Dieing, Reinhold, Dr." as the first inventor.
[2] Tanner, U.S. Patent No. 5,827,508, Oct. 27, 1998.
[3] George, U.S. Patent No. 6,165,449, Dec. 26, 2000.

inorganic UV filter ("sunblock"). Tanner, column 1, lines 9-13; column 2, lines 53-57. The Examiner also relies on George for teaching that it was known in the art to incorporate sunscreen agents into hair care products. Answer, page 4. Based on these teachings, the Examiner concludes:

> it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the hair care compositions of EP 0 893 117 [Dieing] such that to employ UV filters of Tanner et al. One having ordinary skill in the art would have been motivated to do this to obtain compositions having improved photostability, chemical stability and physical stability as suggested by Tanner et al. One having ordinary skill in the art would have been further motivated to do this to obtain compositions that would protect hair from UV radiation as suggested by both Tanner et al. and George et al.

Answer, page 4.

Appellants do not dispute that Dieing describes the copolymer recited in claim 1 as component A), but challenge the Examiner's conclusion that it would have been obvious to have added Tanner's surface-treated zinc oxide to it. They argue

> [i]n light of the technical background knowledge which is reflected in the disclosures of the secondary references [Tanner and George] it is therefore clear that, at the time appellants made their invention, a person of ordinary skill in the art considered inorganic pigments such as zinc oxides suitable for sun protection of the skin. The secondary references fail, however, to suggest or imply that inorganic sunscreen agents would be reasonably considered by a person of ordinary skill in the art as being useful for the protection of hair.

Brief, pages 5-6.

To establish obviousness, the Supreme Court in Graham v. John Deere, 383 U.S. 1, 148 USPQ 459 (1966) has required that the following factors be taken into consideration: (a) the scope and contents of the prior art; (b) the differences between the prior art and the claimed subject matter; (c) the level of skill in the pertinent art; and

(d) evidence of secondary considerations.

In this case, it is undisputed that the difference between the prior art (Dieing) and the claimed subject matter is the presence of an inorganic UV filter in the latter. To determine whether it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Dieing's prior art haircare product with an inorganic UV filter, we first need to consider the scope and content of the prior art, and then the artisan's level of skill.

The prior art teaches that haircare products can contain sunscreen agents (George, column 1, lines 44-46), which we agree with the Examiner would have reasonably suggested to the skilled worker adding such an agent to the hair care formulations described by Dieing. However, the issue in this appeal is narrower: whether it would have been obvious to have added the surface-treated zinc oxide sunscreen agent of Tanner to Dieing's haircare product.

Appellants urge that Dieing cannot properly be combined with Tanner because Dieing relates to products for the hair, while Tanner's disclosure of zinc oxide is for application to the skin. Brief, page 5, line 23-page 6, line 15. We concur with Appellants' argument. Dieing describes the object of its invention as finding cationic polymers for shampoos that possess "improved effectiveness" and which do not exhibit the disadvantages experienced with existing cationic polymers when applied to the hair. Dieing, page 2. Dieing's "invention-based polymers" are described as "suitable as conditioners in cosmetic preparation, above all, for hair." Id., page 5. All the examples in Dieing are to shampoos which comprise the cationic polymer. Id., page 10-11.

George describes several considerations that would be taken into account by the skilled worker in determining the choice of a sunscreen agent for the skin.

> The protective strength of a particular sunscreen agent on the skin depends on a variety of factors ... [which include] ... distribution (or deployment) of the sunscreen molecules on the skin, the spectral UV properties of the sunscreen, the photostability of the sunscreen, the chemical structure, the concentration of the sunscreen, the penetration of the sunscreens into the stratum corneum, and the spreading properties of the vehicle and the subsequent adherence to skin.

George, column 1, lines 47-54.

This disclosure indicates that, as Appellants urge, the skilled artisan would not have "considered all sun screen agents as equivalent independent of the nature of the product." Brief, page 5. To the contrary, the skilled worker would have known that the chemical structure of the sunscreen in the context of the substrate (i.e., skin or hair) to which it is applied would influence its efficacy in protecting the substrate from sun. George provides pertinent considerations for sunscreens which are to be used on the skin. However, there is no evidence in the record of whether these same considerations would be applicable to the hair or what other factors would have been deemed relevant. Consequently, we have insufficient evidence to conclude that the skilled worker would have recognized that zinc oxide could be utilized in Dieing's haircare product.

In addition to this, Tanner also weakens the Examiner's case. According to Tanner,

> inorganic compounds such as zinc oxide ... are not easily formulated into stable products. For example these materials tend to agglomerate in the finished formulations, thus losing their effectiveness and resulting in unacceptable aesthetic properties such as whitening and viscosity changes. Furthermore, materials such as zinc oxide are reactive materials

> which exhibit a wide range of reactivity with alkaline as well as acidic solutions, liquids, and gases.

Tanner, column 2, lines 9-17. To address these problems, Tanner describes a surface-treated zinc oxide which shows "unexpected photostability, chemical stability, and physical stability" when used in combination with dibenzoylmethane for skin application. Id., column 2, lines 20-27. It is not apparent from Tanner whether surface treatment would overcome the problems experienced with zinc oxide when utilized in another milieu, i.e., in combination with a cationic polymer for the hair.

We further note that Appellants argue in their Brief that inorganic sunscreens would have been considered unsuitable for a hair conditioner because they would have been expected to leave a pigmented residue on the hair which would not have been acceptable. Brief, page 6. Arguments of counsel cannot take the place of evidence lacking in the record. Estee Lauder Inc. v. L'Oreal, S.A., 129 F.3d 588, 593, 44 USPQ2d 1610 (Fed. Cir. 1997). Because these arguments were unsupported by evidence, we did not consider them in reaching our decision.

In sum, we do not find that the Examiner has met her burden in establishing that the skilled worker would have recognized that zinc oxide would be a suitable sunscreen block for hair. To put this in terms of the teaching, suggestion, motivation test[4] which has been used by the Federal Circuit to determine obviousness, there is insufficient evidence to establish that the skilled worker would have been motivated with a reasonable expectation of success to have modified Dieing by the addition of a UV filter as taught by Tanner. Accordingly, we reverse the rejection.

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[4] DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co., 464 F.3d 1356, 80 USPQ2d 1641 (Fed. Cir. 2006).

Other issues

Upon return of this application to the technology center, we suggest that the Examiner consider the disclosure of the following patents to determine whether, in combination with the teachings of Dieing, they are adequate to establish a prima facie case of obviousness. U.S. Pat. No. 5,553,630 teaches the use of metal oxide nanopigments, including zinc oxides, to protect hair against light. Column 1, lines 8-11 and 39-41. The metal oxides can be formulated with copolymers. Column 2, lines 51-65. U.S. Pat. No. 5,643,557 also teaches a haircare product containing metal oxides. Abstract; column 8, lines 15-35.

REVERSED

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) INTERFERENCES
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Richard M. Lebovitz)
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